



Tuesday

February 6

4:00 P.M.

Rm 415 NSH

Testing baryons from bubbles with colliders and cosmology

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“Why is there more matter than antimatter?” This simple question is arguably the most longstanding and challenging problem in modern cosmology, but with input from the next generation of particle physics experiments we may finally have an answer! In the talk I will discuss how precision measurements of the Higgs boson at the LHC and future high energy collider experiments will be used to test the idea that the matter-antimatter asymmetry arose during the electroweak phase transition in the fractions of a second after the big bang. Other cosmological phase transitions can also provide the right environment for generating the matter excess. In particular, I will discuss how the matter-antimatter asymmetry may arise during a phase transition at the scale of lepton-number violation, and I will describe the various cosmological and astrophysical signatures that arise.